

REMARKS

Claim 200 has been amended. Claims 124-137, 170-188 and 200-209 remain pending. Claims 124-137 and 170-188 are withdrawn from consideration. Applicant reserves the right to pursue the original claims and other claims in this and other applications. Please reconsider the above-referenced application in light of the foregoing amendment and following remarks.

Claims 200-204, 206 and 209 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,223,726 ("Yamada"). The rejection is respectfully traversed.

Claim 200 has been amended to recite a method of forming a photosensor comprising, *inter alia*, the steps of "excavating a trench . . . having a substantially vertical internal surface region and bottom surface region; performing a first ion implantation . . . at a first ion implantation angle; performing a second ion implantation . . . at a second ion implantation angle; and *forming a conductive layer that covers the vertical internal surface region and bottom surface region of said trench.*" (emphasis added).

Yamada does not disclose performing a first *and* second ion implantation with different angles into a trench. In FIGS. 5(a)-5(k), Yamada teaches that "p conductivity type impurities are ion implanted to the trench hole in the opposite directions *each* perpendicular to the charge transfer direction." (Col. 5, l. 67-Col. 6, l. 2) (emphasis added). Even if Yamada discloses more than one ion implantation, *each* of Yamada's ion implantations would be conducted in a perpendicular direction to the charge transfer direction. Claim 200, in contrast, recites "performing a first ion implantation . . . *at a first ion implantation angle*; performing a second ion implantation . . . *at a second ion implantation angle.*" (emphasis added).

Nonetheless, to expedite prosecution, claim 200 has been amended to recite "forming a conductive layer that covers [a] vertical internal surface region and bottom surface region of [a] trench." Support for this claim amendment is found in Applicant's FIGS. 10-11. Yamada does not disclose a conductive layer that covers the vertical internal surface region *and* bottom surface region of a trench.

Claims 201-204, 206 and 209 depend from claim 200 and should be similarly allowable along with claim 200 for at least the reasons provided above. Moreover, Yamada does *not* disclose that the "first implantation angle is *orthogonal* to said second ion implantation angle," as recited in dependent claim 201 (emphasis added). As indicated above, at best, Yamada discloses the ion implantation angles that are in a perpendicular direction to the charge transfer direction. This is an additional reason for the allowance of claim 201.

Claims 205, 207 and 208 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamada in view of the admitted prior art. The rejection is respectfully traversed.

Claims 205, 207 and 208 depend from claim 200 and should be similarly allowable with claim 200 for at least the reasons provided above with regard to claim 200. For instance, Yamada does not disclose "performing a first ion implantation . . . *at a first ion implantation angle*; performing a second ion implantation . . . *at a second ion implantation angle*," as recited in claim 200, much less "forming a conductive layer that covers [a] vertical internal surface region and bottom surface region of [a] trench," as also recited in claim 200. At best, *each* of Yamada's ion implantations would be conducted in a perpendicular direction to the charge transfer direction. Yamada is completely silent about a conductive layer that covers the vertical internal surface region *and* bottom surface region of a trench.

The admitted prior art is relied upon for disclosing that BPSG, PSG, or BSG are well-known materials for passivating a device and CMP is a well-known planarizing method. The admitted prior art adds nothing to rectify the deficiencies associated with Yamada. As a result, the § 103(a) rejection of claims 205, 207 and 208 should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to review and pass this application to issue.

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Respectfully submitted,

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